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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/822,866

04/13/2004

Hiroko Tsukamoto

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09/12/2006

MCGINN INTELLECTUAL PROPERTY LAW GROUP, PLLC  
8321 OLD COURTHOUSE ROAD  
SUITE 200  
VIENNA, VA 22182-3817

EXAMINER

SANEI, HANA ASMAT

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 09/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/822,866

Applicant(s)

TSUKAMOTO ET AL.

Examiner

Hana A. Sanei

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 6-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3 and 6-14 is/are allowed.
- 6) ☒ Claim(s) 15-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

The Amendment, filed on 6/20/06, has been entered and acknowledged by the Examiner.

Cancellation of claims 4-5 has been entered.

Claims 1-3, 6-22 are pending in the instant application.

Applicant acknowledges and approves of the new title.

### ***Election/Restrictions***

Claims 4-5 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method of manufacturing an LED lamp, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1/25/06.

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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1. Claims 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishibashi (JP 2001196641 A) in view of Susumu et al (JP 08-330637) in further view of Okazaki (US 2002/0024299).

Regarding Claim 15, Ishibashi teaches a metal pattern (2, 3, see at least Fig. 3, 5) formed on a substrate (1) and comprising a copper layer (3a, 3b); a light-emitting element (4) formed on the substrate and electrically connected to the metal pattern. Ishibashi lacks a resist bonded onto a surface of the copper layer.

In the same field of endeavor, Susumu teaches a resist (solder resist film, 7, see at least Figs. 1 & 3) bonded onto an electrically conducting portion (top portion of 3, just adjacent to the junction line, 6a of the mold section, 6) in order to prevent cracks formulating in a mold section ([0006]). It should be noted that just as the original resist of Susumu does not reach the golden wire 5, it also in the device of Ishibashi ceases directly adjacent to the junction line of Ishibashi, thereby not reaching the wire 5 of Ishibashi.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to add the resist, as disclosed by Susumu, in the device of Ishibashi in order to prevent cracks formulating in a mold section. Ishibashi-Susumu lacks a resin frame member.

In the same field of endeavor, Okazaki teaches a resin frame member (5, reflective case, see at least Fig. 3; [0024]) fixed onto the substrate (4, chip substrate) through an adhesive agent (epoxy adhesive, [0024]) wherein light transmissive resin (7) is packed in the frame of the resin frame member; and to form such a structure that the

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resist (7 of Fig. 1 of '637) is at least partially put between the substrate and the resin frame member in order to ensure a high reflection efficiency of visible light ([0024]). It should be noted that at least a portion of the frame member is formed on the resist layer (7 of Fig. 1 of '637) of Ishibashi-Susumu. Furthermore, in the additional manufacturing step Okazaki, the placement of the frame member following the insertion of the resist layer ensures that the frame member is formed on the resist layer.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to add the resin frame member, as disclosed by Okazaki, in the device of Ishibashi-Susumu in order to ensure high reflection efficiency of visible light.

Regarding Claim 16, Ishibashi teaches that the metal pattern further comprise a nickel layer (3c) formed on the copper layer and a gold layer (3d) formed on the nickel layer.

Regarding Claim 17, Ishibashi-Susumu teaches that the gold layer and the nickel layer are formed on a side surface of the resist layer (Fig. 1, 3 of '637).

Regarding Claim 18, Ishibashi-Susumu-Okazaki teaches that that at least a portion of the resist layer is formed between the substrate and the frame member (Fig. 3 of '299).

Regarding Claim 19, Ishibashi teaches a light-transmissive resin (6, resin package) formed on the substrate and sealing the light-emitting element.

Regarding Claim 20, Ishibashi-Susumu-Okazaki teaches that an adhesive layer (epoxy adhesive, [0024] of '299) is formed between the resist layer and the frame member.

Regarding Claim 21, Ishibashi teaches that the copper layer comprises a lowermost layer of the metal pattern (3a, 3b, Fig. 1,3).

Regarding Claim 22, Ishibashi teaches a substrate (1) on which a light-emitting element (4) is mounted; a metal pattern (2, 3, see at least Fig. 3, 5) formed on and comprising a copper layer (3a, 3b). Ishibashi lacks a resist bonded onto a surface of the copper layer.

In the same field of endeavor, Susumu teaches a resist (solder resist film, 7, see at least Figs.1 & 3) bonded onto an electrically conducting portion (top portion of 3, just adjacent to the junction line, 6a of the mold section, 6) in order to prevent cracks formulating in a mold section ([0006]). It should be noted that just as the original resist of Susumu does not reach the golden wire 5, it also in the device of Ishibashi ceases directly adjacent to the junction line of Ishibashi, thereby not reaching the wire 5 of Ishibashi.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to add the resist, as disclosed by Susumu, in the device of Ishibashi in order to prevent cracks formulating in a mold section. Ishibashi-Susumu lacks a resin frame member formed outside the light-emitting element.

In the same field of endeavor, Okazaki teaches a resin frame member (5, reflective case, see at least Fig. 3; [0024]) fixed onto the substrate (4, chip substrate) through an adhesive agent (epoxy adhesive, [0024]) wherein light transmissive resin (7) is packed in the frame of the resin frame member; and to form such a structure that the resist (7 of Fig. 1 of '637) is at least partially put between the substrate and the resin

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frame member in order to ensure a high reflection efficiency of visible light ([0024]). It should be noted that at least a portion of the frame member is formed on the resist layer (7 of Fig. 1 of '637) of Ishibashi-Susumu. Furthermore, in the additional manufacturing step Okazaki, the placement of the frame member following the insertion of the resist layer ensures that the frame member is formed on the resist layer.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to add the resin frame member, as disclosed by Okazaki, in the device of Ishibashi-Susumu in order to ensure high reflection efficiency of visible light.

***Allowable Subject Matter***

Claims 1-3, 6-14 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

The prior art of record teaches a light emitting diode (hereinafter referred to as LED) comprising a substrate coated with a metal pattern formed as an electrically conducting portion including films of copper (Cu), nickel (Ni) and gold (Au) laminated successively in this order on the substrate; a resin frame member fixed onto the substrate through an adhesive agent; a light-emitting element fixed into a frame of the resin frame member on the substrate so as to be electrically connected to the metal pattern; a resist partially formed between the substrate and the resin frame member; and a light-transmissive resin packed in the frame of the resin frame member to seal the light emitting element with the light-transmissive resin. However, the prior art of record neither shows nor suggests the resist being bonded onto a nickel-free or gold-free surface of the copper film of the metal pattern (the metal pattern including copper

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(Cu), nickel (Ni) and gold (Au) laminated successively in this order on the substrate) as set forth in Claim 1.

Claims 2-3, 6-14 are allowable because of their dependency status from Claim 1.

***Response to Arguments***

Applicant's arguments filed on 6/20/06 have been fully considered, the Examiner finds this to be persuasive, as such rejection withdrawn.

Regarding applicant's assertion that Ishibashi (JP 2001/196641) in view of Susumu et al (JP 08/330637) in further view of Okazaki (US 2002/00224299) fails to teach a resist bonded onto a nickel-free or gold-free surface of the copper film of the metal pattern, the metal pattern including films of copper, nickel and gold laminated successively in that order on the substrate, the Examiner finds this to be persuasive, as such rejection withdrawn.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



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**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hana A. Sanei whose telephone number is (571) 272-8654. The examiner can normally be reached on Monday- Friday, 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hana A. Sanei  
Examiner



Joseph Williams  
Primary Examiner